



DIRECTOR'S FORUM

It's time to revisit the turbidity standard

*Kenneth H. Reckhow
Director, Water Resources Research Institute*

An apparent loophole in the North Carolina water quality standard for turbidity in surface waters allows exceedances of the numeric standard under certain conditions. Given that sediment is regarded by some to be the major surface water pollutant in North Carolina, perhaps it is time to reconsider the way the standard is written.

The North Carolina water quality standard for turbidity for all fresh surface waters (Class C waters) states:

Turbidity in the receiving water will not exceed 50 Nephelometric Turbidity Units (NTU) in streams not designated as trout waters and 10 NTU in streams, lakes or reservoirs designated as trout waters; for lakes and reservoirs not designated as trout waters, the turbidity will not exceed 25 NTU; if turbidity exceeds these levels due to natural background conditions, the existing turbidity level cannot be increased. Compliance with this turbidity standard can be met when land management activities employ Best Management Practices (BMPs) recommended by the Designated Nonpoint Source Agency. BMPs must be in full compliance with all specifications governing the proper design, installation, operation and maintenance of such BMPs.

Thus there are circumstances when the numeric limit (50/25/10 NTU) is exceeded but the standard, as written, is not violated. These circumstances allowing exceedances include waterbodies with turbidity from natural sources and turbidity from nonpoint sources for which approved practices (BMPs) have been

properly implemented. It certainly seems possible that these exceptions could be common and constitute a large fraction of the observed exceedances.

Turbidity in surface waters is caused by fine suspended and colloidal material; turbidity prevents light penetration and gives water a cloudy appearance. Turbidity may be due to microorganisms or other organic matter in the water, but in areas of North Carolina with erodible soils, it is often caused by fine soil particles such as silt and clay. Land surface disturbance activities, such as construction and agriculture, create an environment for erosion of fine soil material that causes turbidity.

There are of course well-established erosion and sedimentation control practices that constitute approved BMPs referred to in the turbidity standard. When these practices are properly designed, installed, and maintained, they can be quite effective in the prevention of sediment movement to natural waters. However under certain conditions, it is recognized that these practices fail to prevent the fine soil particles causing turbidity from reaching surface waters. That results in the loophole in the standard.

What should be done? Standard setting involves a balancing of costs and benefits. If the levels of turbidity in the standard are often violated downstream of land disturbance activities that are served by approved but ineffective BMPs, then the implication is that the additional erosion control costs to meet the numeric NTU levels are not justified by the expected benefits. Yet, in other situations, such as NTU violations due to non-construction urban runoff, the implication of the standard is that the turbidity control costs are justified.

This apparent inconsistency needs to be re-examined. Certainly, the total cost and distribution of costs of pollutant control can vary by source type and result in regulations that accommodate these variations. However, the acknowledged shortcomings of approved practices to adequately reduce turbidity strongly suggest that the Sedimentation Control Commission and the Environmental Management Commission should revisit the way this standard is written.

<input checked="" type="checkbox"/> WRRI Home	<input checked="" type="checkbox"/> NCSU Homep.	<input checked="" type="checkbox"/> Other Links	<input checked="" type="checkbox"/> Feedback	<input checked="" type="checkbox"/>
---	---	---	--	-------------------------------------